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NEWS

This column regularly reports significant developments in the program of the National Standard Reference Data System, which was established to make critically evaluated data in the physical sciences available to science and technology on a national basis. The System is administered and coordinated by the NBS Office of Standard Reference Data.

CODATA Meeting Held in Germany

The Third Annual Meeting of the Committee on Data for Science and Technology of the International Council of Scientific Unions was held in Frankfurt, Germany, June 28 and 29, 1968, in the offices of the Gmelin Institute.

NBS was represented by E. L. Brady, Chief of the Office of Standard Reference Data, who attended as an observer.

Committee membership is of three types: national members, Scientific Union members, and co-opted experts. The original national members were France, Japan, the Soviet Union, the United Kingdom, the United States, and West Germany. Canada joined recently and Italy will join soon. During the meeting the national members of Japan and the Soviet Union were elected to the Bureau of CODATA (the executive committee) and Guy Waddington, former Executive Director of the Secretariat for CODATA, was elected as a co-opted expert.

The Central Office of CODATA was transferred from the National Academy of Sciences in Washington, D.C., to the Institute for Documentation in Frankfurt on July 1, 1968; at the same time, Executive-directorship was transferred from Guy Waddington to Christoph Schäfer. The new address is ICSU-CODATA, Westendstrasse 19, 6 Frankfurt/Main, Germany.

Among the principal activities of the CODATA office have been the preparation for the first international CODATA Conference on Numerical Data held at the Evangelische Akademie, Arnoldshain (near Frankfurt), and the gathering and editing of information for a compendium of data compilation projects currently in progress throughout the world.

At the Frankfurt meeting, reports were presented on the activities of the task groups for computer usage, key values

for thermodynamics, and fundamental constants. Principal activity of the task group on computer usage has been a survey of machine techniques used in various data centers throughout the world. The task group on key values for thermodynamics has decided on the properties and substances with which it will deal and has considered a preliminary set of 17 key values prepared by members from the U.S. and U.S.S.R.

CODATA Conference on Numerical Data

To promote the objective of serving as a channel of communications, CODATA organized a symposium entitled the *First International CODATA Conference on the Generation, Collection, Evaluation, and Dissemination of Numerical Data for Science and Technology*. The conference was held at the Evangelische Akademie in the Taunus Mountains. Almost 100 attended, representing 13 countries and one international organization—the International Atomic Energy Agency. The participants were data evaluators, program managers, documentalists, government officials, and CODATA representatives from all member countries.

The program featured discussions of the major national programs, operation of a number of specific projects (Landolt-Börnstein Tables, IUPAC Center on Thermodynamic Properties of Fluids, Thermophysical Properties Research Center, Neutron Cross Section Data Center), common problems of compilers working in related fields (thermodynamicists, infrared spectra), the use of computers in data centers, and the future role of CODATA itself. Some of the reported data and related activities of the attending countries were as follows:

(a) *Soviet Union.* Five representatives of the Soviet Union attended the conference, and reviewed data activities in their organizations. The senior member of the U.S.S.R. group was M. A. Styrikovich, a Deputy Chairman of the Academy of Sciences and Chairman of the National Committee for CODATA. A second member of the group was the Deputy Director of the Soviet State System of Standard and Reference Data (GSSSD). The GSSSD is a responsibility of the State Committee on Standards, a

body with organizational status equivalent to that of the Academy of Sciences. Three others represented the Institute for High Temperature in Moscow.

(b) *Germany.* The Physikalisch-Technische Bundesanstalt (PTB) in Germany (approximately the equivalent of NBS) has embarked upon a study of data compilation activities and establishment of information centers.

(c) *France.* The government of France has recently established a National Bureau of Metrology, with functions similar to those of the National Bureau of Standards. Previously these functions had been scattered through four different Ministries. The new Bureau does not intend to construct new physical facilities but will coordinate and integrate the various scattered activities.

During the meeting, panels on infrared spectroscopy and chemical thermodynamics made progress in planning better coordination of future efforts in these fields. Other panels achieved some results on defining terms and on indexing. The panel on definitions of terms considered the connotations of the widely used term "standard," as in Standard Reference Data. For example, in the U.S.S.R. it connotes a legal standard or specification; in other countries it may imply recommendation by an international body or by a national standardizing laboratory; still others would use it to refer to any collection of evaluated data.

In a final session, CODATA received many suggestions for future work. Noteworthy was a proposal from V. N. Kondratiev of the U.S.S.R. that evaluation and compilation of data for chemical kinetics be started on an international basis. A closing recommendation was that a Second CODATA Conference on Numerical Data be held in 1970 somewhere in Europe.

NBS Alloy Data Center

The NBS Alloy Data Center, one of the data centers in the National Standard Reference Data System, has two primary functions. One is to maintain an awareness and to stimulate communication and exchange of information between (already existing) data centers in the metals and alloy fields. The other is to collect and evaluate data in those fields where special competence exists within the NBS Alloy Physics Section. The Alloy Data Center is part of the Alloy Physics Section within the Metallurgy Division of the Bureau. Areas in which the Section is carrying out programs of active research are: nuclear magnetic resonance (NMR), ferromagnetic nuclear resonance, soft x-ray spectroscopy, Mössbauer effect, low temperature measurements of specific heat and susceptibility, and other magnetic properties.

At the Center documents have been compiled for NMR in metals and alloys. All documentation on experimental Knight shift results is complete and up to date. The Knight shifts are now being evaluated for publication; other NMR parameters may be evaluated at a later date. An annotated bibliography on soft x-ray spectroscopy was

prepared in the Alloy Physics Section before the Center was formed. This compilation is being kept current by the Center and the evaluation of the soft x-ray spectra will be underway shortly.

A single bibliographic system has been designed to automate the Center's document file. NBS Technical Note 464, *The NBS Alloy Data Center*¹ (\$1.25), describes how the system may be used directly by others who intend to maintain files of documents in this technical area. Although the system was designed to handle specific properties of certain materials of interest to the Center, it may be used effectively to document papers covering other properties of these materials. For the system to handle these other properties, a modified thesaurus is used that allows the structure and most of the coding of the system, as well as the computer programs, to remain unaltered. Other data groups who use the system for the storage and retrieval of their own documents may have the Center's files added to their magnetic tapes.

In the system, the classification of properties is strongly oriented toward the storage and retrieval of papers dealing with experimental results or papers bearing directly on experimental results. The automated bibliographic system also has built into it a method for bringing together papers in related fields. This is an important feature for data evaluators in that it facilitates a check on the internal consistency between tables of different properties.

ICSU-UNESCO Panel Meeting on Scientific Information

A joint ICSU-UNESCO study on the feasibility of an international science information system has been underway for approximately two years. At a meeting of the Working Group in Paris, December 1967, a number of subpanels were established to study special aspects of the problem. One of these was on the subject of evaluation, compression, and organization of scientific information, under the leadership of H. Kaiser, Director of the Institute for Spektrochemie and Angewandte Spektroskopie in Dortmund, Germany. E. L. Brady of the National Bureau of Standards is a member of this subpanel. The subpanel met at the Royal Society's headquarters in London, U.K., on July 8, 1968, and approved a report on Evaluation, Compression, and Organization of Scientific Information. The report has been submitted to the ICSU-UNESCO Working Group and has been accepted as a working document.

Charlotte Moore Sitterly Serves as Consultant

On September 30, 1968, Charlotte Moore Sitterly, Director of the Atomic Energy Levels Data Center, retired after 23 years of distinguished service at the National Bureau of Standards. She had served as leader of the Atomic Energy Level project in the Atomic Physics Division for 22 years. William C. Martin of the NBS Atomic Physics Division, with the assistance of Lucy Hagan, took over the

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work of the Center. Dr. Sitterly, however, will continue her association with NBS and the NSRDS, receiving a special appointment as Consultant to the Office of Standard Reference Data. (Dr. Sitterly's technical publications appear under the name of Charlotte E. Moore.) Dr. Sitterly has been working on a number of tables of atomic spectra that have yet to be completed. One of her tasks as a consultant will be to complete these tables. In addition, she will prepare for publication manuscripts on the spectra of Yb I, Hf I, Mo I, and Ta I; a manuscript on the temperature classification of Dy; and an updated bibliography of the atomic spectra, continuing the lists published in NBS Circular 467.

A symposium and reception were held at NBS in honor of Dr. Sitterly on October 4, 1968. Principal addresses were given by Jesse Greenstein of the California Institute of Technology, A. G. Shenstone of Princeton University, and Richard Tousey of the U.S. Naval Research Laboratory.

NSRDS Publications To Use SI Units

In accordance with NBS policy,² the Office of Standard Reference Data has recommended to all data centers and projects associated with the NSRDS that the International System of Units be used in all publications prepared for the NSRDS.

U.S.-U.S.S.R. Cooperation in Data Compilation

Donald D. Wagman, Chief of the NBS Chemical Thermodynamics Data Center, visited the U.S.S.R. June 17-30, 1968, as a member of the CODATA Task Group on Selection of Key Values of Chemical Thermodynamic Properties. Included in Mr. Wagman's itinerary were visits to the Thermochemical Laboratory of Moscow State University, the All-Union Institute of Scientific and Technical Information (VINITI), and the Mendeleev Institute of Metrology in Leningrad.

Discussions were held at laboratories of the Institute of High Temperature and at Moscow State University. V. P. Vassiliev of the Institute of Chemical Technology at Ivanovo, who has been correlating data on heats of dilution, was also present for some of the discussions. S. M. Skuratov, Director of the Thermochemical Laboratory and one of Russia's leading calorimetrists, expressed the hope that his and the NBS group could soon pool efforts and thus expedite the entire program of thermodynamic data evaluation.

As a result of the discussions, the Soviet group agreed to accept the values recommended by NBS for certain carbon compounds. The agreement will make the tables prepared by the two groups more compatible and mutually consistent. In addition, it was agreed to establish a procedure for mutual review of selections of values for other important substances. This procedure will also

be used in establishing key values of thermodynamic data to be proposed to the CODATA Task Group.

While in Moscow, Mr. Wagman visited several of the research divisions of the Institute of High Temperature. This Institute, under the direction of A. E. Sheindlin, was created by bringing together a number of research groups previously located in other Institutes. Its general programs are carried out in six main divisions: liquid metals and gases, high temperature solids, molecular physical chemistry, magnetohydrodynamics, plasma physics, and mechanical properties and fabrication of refractories.

These divisions frequently serve as research groups for larger institutes engaged in practical applications of magnetohydrodynamics, high energy chemistry, nuclear reactor materials, etc. In addition, the divisions carry out extensive research programs of their own.

These research programs appear to focus on the preparation and publication of complete reference works on classes of substances. The Division of Liquid Metals and Gases, under E. E. Shpilrain, has set itself the task of preparing a compendium on the alkali metals. To fulfill this task, the experimental programs of the division provide needed data on thermal conductivity, electrical conductivity, viscosity, and density as a function of temperature for the alkali metals and their binary systems.

Similarly, the experimental programs of the Molecular Physical Chemistry Division, under Lev Gurvich, provide the experimental data in spectroscopy and molecular structure necessary to guide them in their program of reference data on high energy compounds, heavy metal oxides, halides, carbides and nitrides, and alkaline earth compounds. Development and use of empirical correlation schemes also appear to be an integral part of their effort. Thus, the data compilation and evaluation efforts serve as foundations for the experimental programs of the research groups.

Quantitative Electrical Letter Symbols

USA Standard Y10.5-1968, *Letter Symbols for Quantities Used in Electrical Science and Electrical Engineering*, has been issued by the USA Standards Institute and by the American Society of Mechanical Engineers, the sponsors of this standard. This USA standard joins nearly 3000 other standards that have been approved as American Standards by the American Standards Association (ASA). On August 24, 1966, the ASA was reconstituted as the United States of America Standards Institute. Standards approved as American Standards are now designated USA Standards. The Office of Standard Reference Data is encouraging projects and data centers to follow USAS Y10.5-1968.

¹ Available from the Superintendent of Documents, U.S. Government Printing Office, Washington, D.C. 20402, for the price indicated.

² See NBS Interprets Policy on SI Units, NBS Tech News Bull. 52, No. 6, 121-124 (June 1968).

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